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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/067,780 | 02/08/2002 | Miguel Peeters | 1875.2480000 | 3445 |

26111 7590 12/22/2005

STERNE, KESSLER, GOLDSTEIN & FOX PLLC
1100 NEW YORK AVENUE, N.W.
WASHINGTON, DC 20005

EXAMINER

MEEK, JACOB M

ART UNIT PAPER NUMBER

2637

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-----------------|-----------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/067,780 | PEETERS, MIGUEL | |
| | Examiner | Art Unit | |
| | Jacob Meek | 2637 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3 - 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3 - 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see page 10, filed October 31, 2005, with respect to 112, 1st rejection of claim 14 have been fully considered and are persuasive in view of amended claim. The 112, 1st paragraph rejection of claim 14 has been withdrawn.

2. Applicant's arguments filed October 31, 2005 have been fully considered but they are not persuasive with respect to 112, 2nd rejection of claims 4, 10, 13, and 16.

Examiner agrees that there is an example given that specifies a range between one and four, but further notes that this is described as a simple example, and that the full range of j is not defined. Specification does not appear to offer suggestions as to the full range of values that these permutations can encompass and therefore will be maintained until a clearer range of values is specified.

3. Applicant's arguments filed October 31, 2005 with respect to 103 rejections of claims 1- 3, 6 – 9, 12 and 14 have been fully considered but they are not persuasive.

With regard to applicant's argument (page 11), regarding the different scrambling and interleaving scheme used by applicant it is noted by examiner that specification does state that a scheme that is different than that of prior art is used, however, there is no statement in the claim that recites this. Therefore, rejection of the claims over Hansen will be maintained as Hansen provides a method and apparatus for the permutation of data, which appears to provide the functionality as claimed by applicant. Examiner further notes that applicant's argument does not clearly point out how known art and applicant's disclosed invention differs

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so that a clear differentiation can be determined. Examiner requests the applicable sections of ITU G.992 and ANSI T1.413-1995 be cited and furnished so that a clear determination of novelty can be established.

With regard to applicant's argument regarding tone generator (page 12, 2nd paragraph), examiner notes that Hansen discloses a tone ordering unit which performs assignment of bit to tones and appears to be equivalent (see figure 2, 25 and column 3, lines 57 – 65).

With regard to applicant's argument regarding tone decoder (page 12, 3rd paragraph), examiner notes that Hansen discloses a tone de-ordering unit (see figure 1, 62 and column 7, lines 1 – 16) which provides an inverse function to transmit functions.

4. Restatement of previous rejections.

Claims 4, 10, 13, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Range of variable j is not defined in claim or specification.

Claims 1, 3, 6 – 9, 12, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen (US-6,807,234).

With regard to claim 1, Hansen teaches a method of DMT transmission making up a plurality of frames including: allocating a respective number of bits to each of a plurality of discrete tones (see column 2, lines 19 – 29); assigning bits of each frame to discrete tones such that each discrete tone is assigned allocated respective number of bits (see column 3, line 57 – column 4, line 4) wherein permutation mapping bits of each frame to each of discrete tones cycles through a sequence of different permutations in successive frames (see column 3, lines 44 – 56 where scrambler, FEC and interleaver are interpreted as providing a permutation function); generating for each frame a symbol comprising a plurality of discrete tones modulates to transmit the bits assigned to the respective tones

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(see column 3, lines 57 – column 4, line 4); and transmitting the generated symbols (see column 5, lines 1 – 10). Hansen is silent with respect to permutation of data. It would have been obvious to one in ordinary skill in the art at the time of invention that the Hansen's combination of scrambler and interleaver would result in a permutation of data.

With regard to claim 3, Hansen teaches that a variety of interleaving techniques can be utilized in his system (see column 3, lines 31 – 43). The choice of a particular method would be a design choice.

With regard to claim 6 and 7, Hansen teaches a method for data transmission including for each of discrete tones generating for each frame an amplitude phase keyed constellation point representing bits allocated to tone (see column 1, lines 26 – 45).

With regard to claim 8, Hansen teaches a method where FEC is performed (see column 3, lines 10 – 24 where Trellis coding is interpreted as a form of FEC).

With regard to claim 9, Hansen teaches a DMT modem for transmitting a streams of bits making up a plurality of frames, comprising: a tone generator for assigning bits in each frame to discrete tones such that each discrete tone is allocated a predetermined number of respective bits (see column 3, lines 57 – column 4, line 4); wherein permutation mapping bits of each frame to each of discrete tones cycles through a sequence of different permutations in different frames (see column 3, lines 44 – 56 where scrambler, FEC and interleaver are interpreted as providing a permutation function); a constellation point generator for generating a constellation point for each tone representing the assigned bits (see column 5, lines 1 – 10), and an IDFT module for generating an output signal including a plurality of discrete tones from the constellation points (see column 5, lines 25 – 38). It would have been obvious to one in ordinary skill in the art at the time of invention that the Hansen's combination of scrambler and interleaver would result in a permutation of data.

With regard to claim 12, Hansen teaches a transceiver incorporating the method of claim 1 and receiver function is interpreted as inverse of transmits function of claim 1,

With regard to claim 14, Hansen teaches a DMT modem for receiving a stream of symbols representing a plurality of frames comprising: a DFT module for generating constellation points

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corresponding to discrete tones contained in each received symbol (see figure 1, 52); a tone decoder (see figure 1, 62 and column 7, lines 1 – 16), and a constellation decoder (see figure 1, 54).

With regard to claim 15, Hansen teaches a method for transmission and reception of data in claims 1 and 12, and therefore based on aforementioned rejection of claims 1 and 12, the method of end-to-end transmission of claim 15 would have been obvious.

Other Cited Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

NPL references are furnished to provide guidance as to general knowledge and architecture of ADSL systems.

Allowable Subject Matter

6. Claims 4, 10, 13, and 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob Meek whose telephone number is (571)272-3013. The examiner can normally be reached on 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571)272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMM
12/16/05


TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER
22 NTC